up of the smaller arteries of the foot. Such cases as this impress one very sensibly with the serious and grave necessity which exists for regarding rheumatism as one of the most complicated and troublesome diseases for which the practitioner is consulted in modern times. It is probable that the tunics of arteries consist of tissues not very liable to inflammation; yet the extension of rheumatic disease along a large branch of an artery may set up a state of rheumatic arteritis like that in the present case, little suspected hitherto. Out of thirty-one cases of gangrene given recently by Professor Porta, eighteen were due to what he calls metastasis of rheumatism to arterial surfaces and the endocardium. The large external arteries are particularly subject to the disease; but he has not met it, fortunately, in the carotid, though we fear another case of this kind occurred last year also at St. Bartholomew's, where we observed hemiplegia from a clot, distinctly traceable to disease of arteries in the brain, the result of rheumatic endocarditis. This fibrinous concretion in another very remarkable case, also, during the year, produced complete absence of pulse; and, at the after death examination, the left carotid was much thickened, and vessels like the brachials were changed to thickened impervious cords. The obstruction of one artery does not give rise to gangrene; it is rather the *suddenness* with which the obstruction occurs in a vessel like the anterior tibial, or posterior tibial, or both, at their bifurcation in the interspace of the tibialis posticus muscle, or even lower down in the *dorsalis pedis*, as no time is permitted for establishing lateral anastomosing branches, the amount of obliteration exerting less influence than the suddenness with which the arterial current is cut off. Even a temporary enfeebling of the heart's pulse during rheumatism may favour a deposit of fibrin, according to some recent authors, the capillaries remaining healthy, as in mortifications from injury of a traumatic character; while, as regards the gangrene itself, one or more toes may be affected, or even the whole foot, or part of a hand, or the entire hand from the wrist—at least those fearful results of rheumatism are said to be very well known in Italy.

The pathological changes found have been a sero-gelatinous fluid external to the artery, the cellular coat finely injected, and the tunics matted together and friable, or all the coats may present a normal appearance but for the effusion of plastic lymph. Perhaps, as the attention of provincial practitioners is drawn to the subject, such cases which had previously been mysterious in origin may be cleared up.

J. Bowyer, an otherwise healthy-looking and stout bricklayer's labourer, aged 25, was admitted into St. Bartholomew's Hospital March 6th, under the care of Dr. HUE. He had been ill fourteen days previous to admission with rheumatism, and now presents the disease in a well marked form in the joints of forearm and legs. Dr. Hue detected also endocarditis and loud friction-sounds of pericarditis, which were subsequently followed by adherent pericardium. Twenty leeches were ordered to be applied to the region of the heart; milk diet, calomel, and opium. He had subsequently twenty leeches more, and a succession of blisters, over the region of the pericardium; and was treated actively for endocarditis. It is not necessary to go at length into this part of the case, as the rheumatism was neglected before the man's admission to hospital.

March 29th. He was removed to-day to a surgical ward (Henry), to be under the care of Mr. LAWRENCE, for what subsequently proved to be gangrene of the foot of the left side. The toes at first assumed a blue, then a yellow, and ultimately the black mortified appearance of ordinary sphacelus. We asked him particularly as to whether he had had at any time any injury or hurt; but he states that his health has been uniformly good; there has been no "frost bite" (to which the disease bears a remarkable resemblance), the sphacelus apparently arising, according to Mr. Lawrence and Mr. Paget, out of some change in the arterial vessels from fibrinous plugs; as in a similar case we saw also recently in the same hospital, where the pulse

was completely absent in the arteries of the wrist and lower extremities. Mr. Lawrence continued the use of the blisters, and ordered digitalis and powdered squills, beef-tea, etc.

April 11th. The treatment is now chiefly of a surgical kind, with reference to the sphacelus. We purposely omit many of the minor details of the case, as the interest seemed to centre in the fact that rheumatism in this poor man's case, treated without much care by his friends out of doors, had induced endocarditis; and that endocarditis had led to fibrinous effusion, with blocking up of the arteries of the foot, and gangrene.

May. During this month, the line of separation has formed, and all the toes are lost.

July 10th. The man progresses favourably. He has adherent pericardium, and a foot very like one where Mr. Skey performed Pirogoff's operation last Saturday in another patient. K.

Original Communications.

SOME REMARKS ON THE TREATMENT OF DEFORMITIES CAUSED BY THE SCARS OF BURNS.

(THE SUBSTANCE OF A CLINICAL LECTURE.)

By RICHARD QUAIN, F.R.S., Surgeon to University College Hospital, and Professor of Clinical Surgery.

THE treatment of the deformity occasioned by the healing process after deep burns has received a good deal of the attention of surgeons, and, in more recent times, there seems a growing inclination towards the remedy by grafting skin taken from a neighbouring part into the space left bare after the scar has been divided or removed. This operation is liable to the obvious objection that the wound to be healed is thereby doubled, and the risk to the patient in the same proportion augmented. In some instances, indeed, it is the only method of treatment that can be resorted to; where, for instance, it is not possible, by any mechanical contrivance, to hinder the contraction which accompanies the healing, as in injuries of the face or the eyelids. On the other hand, the plan is inapplicable where sound or natural skin is not to be found in the neighbourhood of the faulty cicatrix. A good example of this latter condition was under my care in the hospital about two years ago. It was in a girl, aged seventeen or eighteen years, who had been some time recovered from a very extensive burn. She applied to be relieved from the great inconvenience caused by the almost entire loss of the use of the right arm and forearm, which were closely bent together, and bound to the side by a thick and comparatively short fold of new skin extending from the nipple of the mammary gland to the wrist. In short, the whole limb was folded up, and the hand was close to the breast. The integument of the entire circumference of the arm having been involved in the original injury, the skin on the back and sides of the limb could not here be made available in any way in an operation; and to borrow some eighteen inches long of the integument from the side of the trunk did not seem a prudent operation, if it were unobjectionable on other grounds. The greatest difficulty in the management of that case arose from the necessity of keeping the arm away from the side during the cicatrization of the wound. To hinder the contraction at the elbow is comparatively easy; but under the shoulder-joint all the vigilance and ingenuity of the surgeon are required to attain that end.

To the following case, which has been treated on the

same principle, an additional interest attaches on account of the length of time it has been under observation, as well as of the completeness of the cure.

CASE. Anastiss Allen, aged $8\frac{1}{2}$ years, sent me by Mr. William Hay of Albany Street, had been burnt on the 6th December, 1852, her pinafore having taken fire. The injury involved the whole of the front of the neck and the upper part of the chest. The wound was entirely healed when I first saw the child. She was then able to close her mouth only by bending the head so as to turn the face to the ground. In order to look up in any degree, the eyes were rolled upwards, and it was only so that she could look at anything before her. By the attempt, too, to raise the head the lower lip was drawn down, the gums and teeth were laid bare, and the mouth was opened. The anterior part of the lower maxillary bone had come to be inclined, so that the cutting edges of the incisor teeth looked forwards. (See fig. 1.)

Fig. 1.

The cicatrix was coarse in texture, and thick. It projected at the front of the neck, straight from the chin to the first bone of the sternum. Outwards, it extended to the ear at each side, and thence to the middle of the clavicle. To the shortness and unyielding strength of the fold of the new skin were obviously due the inclination of the head downwards, with the dragging of the lip, and the deviation of even the bone with the teeth from the proper vertical direction.

The little patient being, when it first came under my observation, in feeble health, and with some palpable indications of rachitis, I put her, as preparatory to the local treatment, on the use of steel and cod-liver oil, with a nutritious diet. This plan, which was continued for some months, was well carried out by the child's mother, an intelligent and careful person. The result of the preparatory treatment was very satisfactory.

The local management consisted in raising from the neck the cicatrix after it had been divided transversely at the sternum, and reapplying it beneath the base of the lower maxilla, the contraction of the healing process being afterwards prevented by mechanical appliances.—The coarse, newly formed skin, with subjacent cellular membrane, was freely separated from the other structures, and, at the same time, several short bands of fascia were divided or removed. When moved upwards, the flap was expended between the chin and the os hyoides. As first it was much puckered; but in the end the surface became smooth, and the skin was well accommodated to its new position. I desired to preserve the skin, and to place it beneath the maxilla, in order that the extending apparatus, which must neces-

sarily be applied to the base of that bone, might not press on a raw surface.

The apparatus first applied was fixed on the pelvis, and the extension was made with a strap beneath the chin, attached to a bar, which passed behind the spine, and arched above the head. But that contrivance was scarcely firm enough, and the child at times slipped her head aside from it. I, therefore, resolved on having an instrument to rest on the shoulders; and after Dr. Hillier had kindly searched in vain among the stores of our mechanicians for one likely to accomplish our object, I sent for Mr. Hainsby to construct one. His apparatus has fully answered my purpose. The second figure will sufficiently explain its construction. By the screws not only was the space between the basis on the shoulders and the lower maxilla increased at will, but one side, when necessary for the purpose of stretching particular bands, was raised beyond the level of the other.

Fig. 2.

The screws, it may be observed, were sufficiently removed from the surface to allow of the dressings being applied without disturbing the apparatus.

When first used, the upper circular piece was made to fit to the front as well as to the under part of the chin, with a view the sooner to rectify the obliquity of the bone; but this shape was soon given up, and that part of the apparatus was made flat and to bear further back—altogether beneath the base of the maxilla. For a time, too, the pressure against that bone was relieved by a curved spring laid on the back of the neck; its convexity being applied to the neck, and the upper end fixed under the strap at the occiput, the neck would obviously be inclined backwards in proportion as the lower end of the spring was made to approach the strap on the shoulders. The first contrivance (represented in fig. 2) was, in the end, further changed—made lighter by substituting a broad circular band or collar for the lower shoulder pieces.

The present freedom from all contraction and from inequality of surface is shown in the third figure, taken from a drawing made a short time ago at the house of the patient by Mr. Fairland. The drawings from which the other figures

have been copied, it may be well to say, are from the pencil of the same artist.

It should be noted that the integuments now move freely on the underlying structures.

Fig. 8.

How long the extension is to be kept up after the wound has been closed is a question difficult to decide on. It is certain that the contraction goes on for a considerable time afterwards. In the case before us, the apparatus was first applied in December 1854, and it is only now laid aside.

CASE OF TRAUMATIC POPLITEAL ANEURISM. TREATED SUCCESSFULLY BY COMPRESSION OF THE FEMORAL ARTERY.

By A. D. DUNSTAN, Esq., Holmes Chapel.

[Read before the Lancashire and Cheshire Branch, June 25th, 1856.]

WILLIAM MASSEY, aged 38 years, a healthy agricultural labourer, fell some feet off a ladder on to the forks of a hay pike, on the 20th September, 1855. The forks caught the lower part of the left thigh, one entering the inner side of the popliteal space, the other the front part of the limb about a hand's breadth above the patella. The wounds were not larger than the iron which had produced them. They both bled very freely; but the hæmorrhage was stopped by a groom, who dexterously applied a compress of tow, secured with tape and linen.

The next day I saw him, and found the parts much swollen. He remained quiet in bed, using fomentations and other means to promote the absorption of what appeared to be a subcutaneous effusion of blood. I only saw him once, as a day or two after the injury I went from home; and on my return was told that he was walking about, nearly well—there being only a little swelling and slight stiffness of the knee.

About seven or eight weeks after the injury, I met the man, walking lamely, and found that he had not been able to resume work, as the knee was still rather stiff and swollen, and the leg swelled every day after standing.

On examining the limb, I found an enlargement of the inner half of the lower third of the thigh, with an imperfectly defined outline, soft, forcibly pulsating; a particularly loud sawing *bruit* was audible over every part of the swelling. Pressure on the femoral artery stopped the *bruit*; and the tumour at the same time became smaller.

Having this clear indication of aneurism (which perhaps may not be quite correctly called diffused, nor yet circumscribed), I directed him to lie in bed, with the limb raised,

to have the swelling gently supported by plaster, to take a mixture of antimony and digitalis, and to have low diet. This was done, but without any result; and in the second week of December, I decided to try to effect a cure by compression of the femoral artery, by Dr. Carte's beautifully ingenious apparatus. My friends, Mr. Bland, of Macclesfield, and Mr. Carew, of Pendleton, concurred, after carefully examining the case.

I was not able to procure the instruments until the 29th December, on which day (thirteen weeks from the time of injury) the state of the limb was as follows. The tumour was very tense in the popliteal space; thence it spread up the inner side of the lower third of the thigh and half way across its front aspect. It pulsated very forcibly and visibly; it was firm around the circumference, but very soft and yielding at the most prominent part, which was at the inner side of the limb, and here the walls of the cyst appeared to be very thin, and the skin was slightly discoloured. The *bruit* was very loud all over the swelling. The circumference of this thigh an inch above the patella was an inch and three-quarters greater than its fellow. Below the knee the whole limb was œdematous, the cutaneous veins were unusually distended, and the temperature was a little increased.

Before applying the compressors, I removed all the hair from the inguinal region and thigh, and then with ink on the skin marked out the course of the femoral artery. Over the foot and leg a well fitting stocking was drawn, as a better support than any roller bandage; but the tumour itself was left untouched. I then adjusted the one instrument to the pelvis, and the other to the middle of the thigh, and laid the limb comfortably on its outer side.

I had previously made the man and his wife (both blessed with a good portion of common sense) understand that to them must be in a great measure trusted the successful use of the instruments; as, my patient being five miles from my own residence, it was impossible for me to be with him often. I showed them how to apply the pressure, first by the one screw, then by the other, to such a degree as almost to stop the pulsation of the tumour. They promised to keep all adjusted during my absence: a promise which they faithfully fulfilled. I directed starch and oxide of zinc to be sprinkled on the skin when relieving it from pressure, and gave the man an opiate mixture to take *ad libitum*, so as to diminish the irritation as much as possible.

The first day or two we were all unduly anxious to effect a cure quickly, and applied the pressure more heavily and more constantly than was desirable, until the patient had been accustomed to the irritation. This made him rather restless, but, by moderating the force and altering the bearing of the compressors, undue pain was avoided; sleep was obtained by removing the pressure for a time; and then, during sleep, the screw was gently tightened without arousing the man.

This treatment went on for ten days, without any material alteration in the limb or tumour. The œdema had increased, but not to a serious extent; the temperature of the limb was not much affected, the man only complained of its feeling numbed and heavy; the skin under the pads was sore, and somewhat inflamed; but as the range of the instruments is so great, pressure could be varied in situation, and be borne without injury.

From the tenth to the fourteenth day, the œdema increased considerably, and the limb became hotter, the skin of the leg shining and rather tender. The aneurism was apparently but little altered, perhaps only a little firmer, and the firmness extended further towards the centre; the pulsation was as great as ever when the pressure was removed.

On the sixteenth day, the tumour was certainly more solid in every direction, but yet pulsating very freely, and still soft in the centre. The parts which had been pressed on being very sore, and the œdema increasing, and being satisfied that consolidation had begun, I felt anxious to remove the pressure for a few hours, so as to give my